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Heavy price for gold

By Launce Rake <lrake@lasvegassun.com>, Las Vegas Sun
Las Vegas Sun

Jack Ray has been hunting ducks in Utah's Farmington Bay, just "a stone's throw" from downtown Salt Lake City, since he was a kid.

Now a father, he takes his own children hunting in the same popular area of Great Salt Lake - but he gives them advice he never imagined when hunting three decades ago.

Ray tells them not to shoot certain ducks: northern shovelers and common goldeneyes. The state says they have dangerous levels of mercury - a neurotoxin that is linked to brain damage, birth defects and cancer in humans.

Fish, too, are being contaminated in Utah, the state says. And more species will surely follow as the region continues to discover the extent of the mercury pollution.

To someone like Ray, vice president of the Utah Waterfowl Association and a sportsman from the marsh boots up, the warning has changed his relationship with the West.

"The waterfowl levels are shocking, 40 times EPA limits," he said. The outdoors, instead of a place to escape, has become "a huge public health issue."

As evidence of the damage grows, so, too, does a debate over the source of the mercury. Environmentalists and officials in Utah, Idaho and other states say the mercury almost certainly comes from the huge open-pit gold mines that pockmark Central and Northern Nevada.

There, gold mining operations have pumped out airborne mercury for decades - unregulated by state or federal agencies.

Estimates are that Nevada gold mines produced 100 tons of mercury over the past 25 years. In one lake near Twin Falls, Idaho, researchers found mercury levels at 150 times more than found in lakes in the northeast United States, where environmentalists have concerns about mercury from power plants.

Nevada residents can be forgiven if they aren't aware of the problem in neighboring states. Prevailing winds carry the metal away from Nevada's population centers and across the Intermountain West.

Nevada state and federal lawmakers, many of whom have been the recipients of mining's political contributions over the years, have worked to keep mercury emissions from mines unregulated. Until the late 1990s, the EPA did not require Nevada's politically powerful hard-rock mines to even report the amount of mercury they were releasing.

But once the agency did demand disclosure, alarms began to sound. The first year the emissions were measured - 1998 - Nevada led the nation in airborne or "smokestack" mercury releases.

In the years since that first report, as public awareness of the damage outside of Nevada slowly grew, the state instituted a voluntary program to cut mercury emissions. The EPA says the program has sliced emissions by 80 percent, although environmentalists and officials in neighboring states challenge that claim.

This week, the state Environmental Commission will consider making Nevada's voluntary controls mandatory - covering all gold mines in the state.

But the harsh truth is that even if mercury never again blows downwind from Nevada, hunters such as Ray and his children - and his children's children - will have to deal with mercury in the environment. Elemental mercury can circulate through the environment virtually forever.

"This problem is not going to go away," Ray said.

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Workers at Newmont Mining's huge Carlin mine, sprawling across 1,200 acres of arid Northern Nevada, say the region has two seasons: mud and dust.

Winter rain and snow brings mud. Summer heat brings clouds of dust.

The mines operate in an area that has little else except vast grasslands interrupted by occasional mountains. The wind whips through the mines, the huge leach pads - artificial mountains built for chemical extraction of gold, the mile-wide waste dumps and piles of spent rock, "tailings" that can leach toxic chemicals.

Despite their grousing, workers don't mind wading through the slop or breathing the clouds of dust. They are diligent about wearing their hard hats when navigating the wide dirt roads shared by company cars and 190-ton ore haulers.

Processing plants, huge waste dumps and 1,000-foot-deep open-pit mines are spread across 3,000 square

miles of Nevada, providing the backdrop of a vast industrial operation.

Another common sight in the mining plants might be more ominous: Signs throughout the production plants, which chemically and mechanically separate gold from waste rock, warn of mercury in the air. The signs, updated with fresh readings several times a day, tell the workers how much time they can spend without respirators.

Mercury is emitted because the same ore that contains microscopic flakes of gold also contains mercury. Modern gold mining crushes many tons of rock to produce an ounce of gold.

To separate the mercury from the gold, the ore is heated. Mercury, which is more volatile than other metals, is burned off into the atmosphere while the heavier gold or other metals remain.

In Central and Northern Nevada, the warnings of airborne mercury are the price the workers pay for a healthy wage in an otherwise economically bereft region. The business is gold, and business is good.

At prices topping $570 an ounce, up 114 percent in five years, Newmont and its competitors are looking at a bull market for the precious metal. Newmont's huge industrial operation outside Elko is part of a network of mines the company operates to produce about 2.5 million ounces of gold a year.

The company is the largest private employer in Central Nevada, with about 3,000 employees. Newmont officials dominate local politics, especially in Elko, where the local Chamber of Commerce head is also the spokesman for the company.

Newmont has had controls on emissions of mercury for decades. The reason was not to protect the environment, but to protect the health of workers. Even in the "pour room," a sealed, metal-walled area where molten gold is poured into six ingot-shaped molds, workers wear ventilation devices because of the mercury in the air.

The emissions controls work well enough that Newmont sells the liquid metal recovered in two-ton casks.

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Nevada is the best place in the world for open-pit hard-rock mining, the industry says.

In March 2005, a survey of mining executives by the Fraser Institute of Canada said that of 64 jurisdictions around the world that have significant mineral deposits, Nevada offered the best mix of industry-friendly regulations, tax policy, government stability and infrastructure.

Nevada Mining Association President Russ Fields wants the state to remain friendly to the industry.

"Mining is a vital industry in Nevada, particularly in our rural counties, and it's imperative that our state policies encourage exploration, otherwise these companies will go elsewhere," Fields said.

Utah recognizes the importance of mining in Nevada. But that state also sees the Great Salt Lake as important: It has a historical connection to the Church of Jesus Christ of Latter-day Saints and is a vital resource for millions of migratory birds.

No fish live in the highly saline waters of the lake, but one of Salt Lake City's industries is the harvesting the lake's brine shrimp eggs, which are sold overseas as food for shrimp farms.

The once-sleepy issue of mercury gained considerable traction in Utah over the last year after U.S. Geological Survey researchers found mercury concentrations in the Great Salt Lake "among the highest ever measured in surface water," the agency's scientists reported. Concentrations ranged from 50 to 100 times that found in water samples collected from reservoirs in Maryland.

"It's pretty alarming," said Tim Wagner, a Sierra Club activist in Salt Lake City.

Independent testing by the U.S. Fish and Wildlife Service also found extremely high mercury levels in waterfowl in the lake, and last year, a Utah agency issued advisories urging people to limit consumption of fish from lakes around the state.

In September, the Utah Wildlife Resources Division issued warnings about not eating two types of duck with high levels of mercury. The agency said its warning was not an effort to be cautious, but reflected a very real health threat.

"Long-term consumption is believed to be particularly harmful," Utah warned. "Mercury that could be ingested by eating these two duck species can build up to unacceptable levels and will stay in your body a long time, possibly impairing your brain and other body functions."

The source of the mercury, however, has not been proven - and Nevada mining companies say they should not have to shoulder all of the blame. Environmentalists and Utah officials agree that other industries yield mercury pollution, but they see Nevada's mines as by far the largest offender.

Here's what is known:

In 1998, over the objections of the mining industry, the Clinton administration's EPA required mining companies to report their releases of mercury in what is called the annual Toxic Release Inventory.

The first EPA reports came out in 2000, based on 1998 numbers. They showed that of more than 18,000 pounds of mercury poured from smokestacks into America's skies, all but 5,000 pounds of it came from Nevada, mostly from gold mines.

And of 9.4 million pounds of mercury and related compounds produced by all industries throughout the United States, a little more than 9 million pounds came from Nevada's mining operations.

At sites near gold mines, scientists have recorded airborne mercury at concentrations more than 100 times normal background levels.

To be sure, metal mines, all of which can produce mercury, are found throughout the West. The Great Salt Lake has a large copper mine just a few miles from the water, in the hills above Utah's capital city. Coal-fired power plants, which also produce mercury, can be found throughout Utah and surrounding states.

John Mudge, Newmont's environmental director for North America, said the company wants more research to identify the levels of contamination in the West and the potential sources.

But environmentalists in Idaho say they don't need any more evidence, given two simple facts: Mercury is emitted by the mines and the wind carries airborne material across the West.

The Idaho Conservation League says that the reported 80 percent cut in emissions demonstrates that the industry was a huge polluter in Idaho for two decades. Besides, those numbers still leave 20 percent of the mercury in the air, said Justin Hayes, program director for the league. The last 20 percent still represents a significant danger and is making it dangerous to eat some Idaho fish, he said.

"They have a lot to atone for," Hayes said.

Rick Sprott, director of Utah Division of Air Quality, said his state wants more research "to try to get a better handle on exactly how much mercury is coming out and what to do about it."

Regardless of the problems in neighboring states, Nevada mining companies realized after those first EPA figures were released that the industry had a problem.

The four biggest companies and the Nevada Environmental Protection Division quickly drafted and enacted a voluntary emissions control program in 2001.

The companies that signed on were industry leaders Barrick Goldstrike, Newmont Mining, Anglogold (now Queenstake Resources) and Placer Dome.

In 2003, the Bush administration's EPA lauded the Nevada agency for reducing air emissions of mercury by more than 75 percent in just two years, a percentage that has grown to more than 80 percent.

The EPA called the reduction "the most significant reduction of a major bioaccumulative pollutant ever made." Part of the success stems from the enormous market share the four mining companies

represented. The EPA noted that about two-thirds of the dozen or so Nevada mining companies, all smaller players, had not joined in the program.

But environmentalists challenge the extent of the reductions from the voluntary program. Elyssa Rosen, a senior policy analyst with Great Basin Mine Watch, a Nevada-based environmental group, said most of the reduction came from cuts by one company at one mine, Queenstake Resources' Jerritt Canyon mine.

According to federal data, the company released almost 8,000 pounds of mercury into the air in 2001, but by 2003 had cut those numbers to about 800 pounds, a 90 percent reduction. That mine is so large that the reductions there offset increases in emissions at other plants, Rosen said.

For example, Newmont's Carlin South mine increased mercury emissions from 490 pounds in 2001 to 550 pounds in 2003, she said. At Barrick's Goldstrike mine, the numbers went from 1,243 in 2001 to 1,438 in 2003.

Dante Pistone, a Nevada Environmental Protection Division spokesman, doesn't disagree with the analysis of the emissions data. But he said the varying measurements are not relevant to the future.

"Our point is that mercury emissions were reduced substantially in the voluntary program, and we know that the best available control technology has been installed at those sites that are the major emissions sources," Pistone said.

What's more, the rules would be updated as new emission-control technology and information becomes available in the years ahead, Fields said.

"It is certainly not freezing things in place for eternity," said Leo Drozdoff, top man at the Environmental Protection Division and former chief of its Bureau of Mining.

Many environmental advocates, however, are not pleased with the proposed rules. Great Basin Mine Watch has several concerns:

• The rules are written in a way that allows them to be weakened if the cost of carrying them out is too high, but they would not grow stronger if public health or environmental concerns rise.

• They do not require continuous monitoring, especially in communities in Northern Nevada. Such monitoring is, the group notes, required by 2009 for power plants under federal clean-air rules.

• They do not require the industry to reach a specific goal for mercury reductions, a sharp contrast to the federal rules for power plants, which call for a 70 percent reduction by 2018.

Glenn Miller, a UNR scientist and Great Basin Mine Watch board member, said the new rules are "still

insufficient to deal with the problem. We need to respond appropriately to the human and environmental threat it presents ... (but) the political will is simply not there."

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On the reedy marshes of Farmington Bay on the Great Salt Lake, Jack Ray worries that the level of pollution already in the environment will be with his three children for many, many years.

As he did as a boy, Ray still watches baby birds riding on the backs of adult grebes in the spring and hundreds of bald eagles fetching their meals from the bay's waters in the winter.

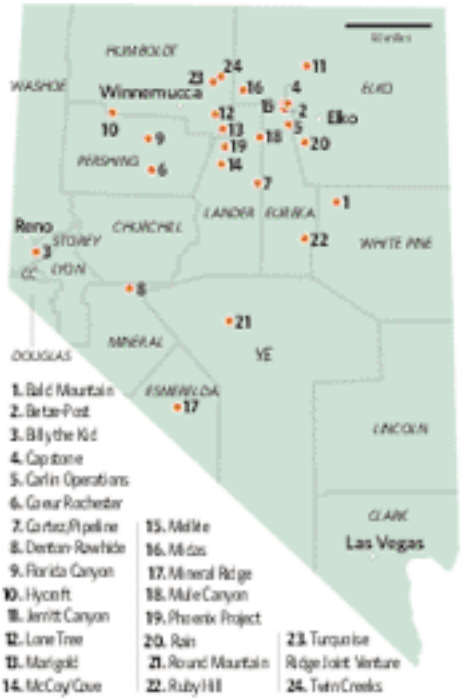
"I grew up going to Farmington Bay," Ray said. "We would go out on Saturdays and spend the day on the marsh, and watch the sun go down, the sky turn colors, the lights twinkling in the city and ducks whistling past your ear.

"As I've had kids, I've tried to pass that on to them ... Eating the meat we harvest is an important part of that. So this has created a real concern."

Launce Rake can be reached at 259-4127 or at lrake@lasvegassun.com.

MAJOR GOLD AND SILVER MINES IN THE STATE...

While there is debate over the source of mercury poisoning in the region, many environmentalists point to Nevada's open-pit gold mines whose emissions remain unregulated.



...AND HOW NEVADA'S NEIGHBORS CAN BE AFFECTED

Prevailing winds move West to East. Some cities, like Elko, are just outside clusters of mines where mercury warnings are common. But it doesn't take long for smokestack emissions to spread around the Intermountain West.

SOURCE: NEVADA BUREAU OF MINES AND GEOLOGY

PROGRESS IS BEING MADE — NEVADA CUTS REPORTED MERCURY EMISSIONS

Since 1998, Nevada has dramatically cut its emission of airborne mercury thanks, regulators say, to a voluntary control program. Nevada's place on top of the list of sources also has fallen as other states stepped up their reporting of emissions of the metal.

Point-source smokestack *mercury emissions, in pounds*

1998		1999		2000		2001		2002		2003	
Nev.	13,153	Nev.	12,072	Tex.	15,102	Tex.	13,523	Tex.	14,536	Tex.	13,449
Lou.	1,205	Kan.	1,170	Nev.	11,728	Nev.	12,746	Ohio	9,758	Penn.	10,001
Kan.	1,125	Ten.	649	Ohio	10,842	Ohio	10,579	Nev.	8,886	Ohio	8,999
Ark.	660	Ohio	607	Penn.	10,764	Penn.	8,560	Penn.	8,691	Ill.	7,006
Ohio	607	Wyo.	400	Ind.	7,346	Ind.	7,011	Ind.	7,642	Ind.	6,246
U.S.	18,297	U.S.	16,360	U.S.	147,105	U.S.	139,021	U.S.	132,022	Ala.	5,356
										Nev.	5,025
										Cal.	4,677
										U.S.	129,848

*Point source: source of pollution can be pinpointed, such as a drain or chimney stack.

SOURCE: U.S. ENVIRONMENTAL PROTECTION AGENCY

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